IV. Remarks.

Amendment of the Specification.

The amendment to the specification does not add new matter for the following reasons.

a. According to the Affidavit of Sedlacek previously submitted, "rib" is a term of art which refers to features which extend along a length of a belt as opposed to "teeth" which extend transverse to the belt across a belt width. The Examiner has acknowledged the use of the term "rib" throughout the specification and in the claims. The specification does not change the meaning of the term "rib" as used in the art. Put another way, these are apples and oranges.

b. The cross section view of the belt width (W) in Fig. 1 shows that the tensile cords 15 extend in the same direction as the ribbed surface 25. Since the width (W) and thickness (t) are identified, it follows that the dimension away from the viewer toward the page is the belt length. This is common convention for drawings which needs no explanation in the specification.

c. Tensile cords 15 are used to bear a tensile load, hence the descriptive term "tensile". The meaning of "tensile" is not changed in the specification and is consistent with the art, for example at page 6, lines 3-5. This definition is also consistent with the description at page 7, lines 7-16, indicative of a "tensile" load along the belt length as shown in Fig. 3 and Fig. 4.

d. Although clearly not described and presented here simply for the sake of argument, an interpretation which would have the tensile cords 15 extend transversely across the width (W) would not be reasonable since this would leave only the elastomeric body to bear the tensile load. This configuration is neither described nor claimed.

e. Each of claims 1, 13 and 28 recite "a tensile cord contained within the elastomeric body and extending longitudinally". Since the ribbed surface 25 extends in the same direction as the tensile cords according to Fig. 1, it follows that the ribbed surface extends longitudinally.

Affidavit of Sedlacek, 37 CFR §1.132

Before addressing each of the rejections in turn, the Applicant would like to reply to the Examiner's comments on page 8 of the office action. The deficient teachings of Chen and White have been argued in previous submissions. In a concluding sentence the Examiner notes that "the claims of the instant invention fail to stipulate a direction of their ribbed profile..". Applicant appreciates the Examiner's candor. However, Applicant has argued in this case that one skilled in the art recognizes there is a difference between a rib and a tooth. These features and the terms to describe them are well established in the belt arts. These features are not equivalent and are not interchangeable. The term used in claim 1 is "rib". This is unambiguous and clearly distinguishable from a "tooth". In support of this argument the enclosed affidavit of Douglas F. Sedlacek is submitted under 37 CFR §1.132 ("Affidavit").

The Affidavit attests to the use of the terms "rib" and "tooth" in the art. Applicant requests consideration of the Affidavit by the Examiner.

The Examiner entered the following rejections.

1. Claims 1, 2 and 4-7, 13-14, 16, 17, 28 and 31 are rejected under 35 USC 103(a) as being unpatentable over Adifon et al (WO 99/43598) in view of Winninger et al (US 6,033,331).

A rejection based on 35 U.S.C. § 103 must rest on a factual basis, with the facts being interpreted without a hindsight reconstruction of the invention from the prior art. Thus, in the context of an analysis under § 103, it is not sufficient merely to identify one reference that teaches several of the limitations of a claim and another that teaches several limitations of a claim to support a rejection based on obviousness. This is because obviousness is not established by combining the basic disclosures of the prior art to produce the claimed invention absent a teaching or suggestion that the combination be made. Interconnect Planning Corp. v. Fiel, 774 F.2d 1132, 1143, 227 U.S.P.Q. (BNA) 543, 551 (Fed. Cir. 1985); In Re Corkhill, 771 F.2d 1496, 1501-02, 226 U.S.P.Q. (BNA) 1005, 1009-10 (Fed. Cir. 1985). The relevant analysis invokes a cornerstone principle of patent law:

> That all elements of an invention may have been old (the normal situation), or some old and some new, or all new, is . . . simply irrelevant. Virtually all inventions are combinations and virtually all are combinations of old elements. Environmental Designs v. Union Oil Co. of Cal., 713 F.2d 693, 698 (Fed. Cir. 1983) (other citations omitted).
>
> ***
>
> A patentable invention . . . may result even if the inventor has, in effect, merely combined features, old in the art, for their known purpose without producing anything beyond the results inherent in their use. American Hoist & Derek Co. v. Sowa & Sons, Inc., 220 U.S.P.Q. (BNA) 763, 771 (Fed. Cir. 1984) (emphasis in original, other citations omitted).

As the Court of Appeals for the Federal Circuit recently noted, "[w]hen a rejection depends upon a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references." Ecolochem, Inc. v. Southern Calif. Edison, 56 U.S.P.Q. 2d 1065, 1073 (Fed. Cir. 2000). There must be a rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. In re Dembiczak, 175 F.3d 994, 999 (Fed. Cir. 1999). This is because "combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability." Id. Accordingly, to establish a rejection under 35 U.S.C. § 103, a person of

ordinary skill in the art must not only have had some motivation to combine the prior art teachings, but also some motivation to combine the prior art teachings in the particular manner claimed. See, e.g., In re Kotzab, 217 F.3d 1365, 1371 (Fed. Cir. 2000). In other words, the Examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. In re Rouffet, 149 F.3d 1350, 1357 (Fed. Cir. 1998).

None of the references teaches all of the limitations contained in independent claims 1, 13 and 28, namely, "the ribbed profile having a rib with an angle of approximately 90°".

The Examiner has substituted the new reference Winninger over Chen. Winninger does not provide the necessary teaching. Contrary to the Examiner's argument, and as is the case with the prior reference Chen the current reference Winninger makes no specific mention of a *rib angle* as claimed.[1] The sole relevant reference in Winninger is found at col. 3, lines 32-39 which states:

> "Such belt is advantageously of the "striated" type, i. e. its inner surface 22 is shaped like teeth 23, the pitch P of which is standardized, as well as their triangular cross-section as shown (V belt) or their trapezoidal cross-section, each reference character H, J, K, L and M in the ISO Standard 9981 also defining the belt thickness, as measured between the tooth bottom 24 and the outer surface of the belt."

Winninger relies entirely on the teachings of ISO Standard 9981 to describe the applicable rib angle.[2] This is in part because Winninger is directed to a feature unrelated to rib angles. Namely, it is directed to the modulus (stiffness) of the belt cords or twisted strands (20):

> "A power transmission striated belt including an elastomeric matrix (21) and a lengthwise supporting structure consisting of polyamide 4.6 twisted strands (20). The supporting structure (21) is selected so that the stress-elongation diagram of the belt exhibits an average slope ranging from 12 to 20 daN/% of elongation

[1] Applicant recognizes that Winninger refers to "teeth" col. 3, line 33. This is most likely an artifact of the translation from the priority document which is French; [FR] 96 11487.

[2] ISO 9981 is directed to "V-ribbed belts", see page i and iii, "Introduction", namely, "The V-ribbed belt drive is composed of an endless belt with a ***longitudinally ribbed*** traction surface which engages and grips, by friction, pulley grooves of similar shape." (emphasis added).

per width centimeter. The twisted strands are wound with an almost null nominal tension, and the curing operation and the cooling operation after curing are carried out without any belt tensioning." (Winninger Abstract).

The relevant portion of ISO 9981 (attached), namely page 3, section 3.1, Table 1, "Dimensions of PK pulley grooves" only defines groove angles (and therefore belt rib angles) in the range of 40° ± 1°.[3] Hence, there is no teaching in Winninger concerning a rib angle of approximately 90°. Nor can this reasonably be inferred since Winninger relies solely on ISO 9981 for the rib angle disclosure.

It is well established that Adifon makes no mention of ribs, instead only teaching flat ropes (16). The disclosed flat ropes do not comprise nor teach nor reasonably suggest ribs. Ribs are simply not present. No combination of Adifon with Winninger will produce the rib angle as claimed. If *arguendo*, there is incentive to combine Winninger with Adifon, the most to be hoped for is a belt having rib angles of 40° ± 1°. This is not the claimed combination.

As noted in the argument dated August 30, 2006, the claimed rib angle represents an increase in torque and load carrying capacity. It results in other desirable effects as well, namely, low noise for lift systems. The inventive belt provides these benefits in a lesser width, thereby saving space and pulley width, each representing a cost savings over the prior art systems as well.

As noted on page 5, lines 6-20 of the application:

"In the case of an approximate 90° rib angle, ***angle α increases a pulley engaging surface area by a factor of approximately √2***. Increasing the belt surface engaging a pulley in this manner ***increases the torque*** which can be transmitted by a lift pulley. This in turn ***increases the load capacity*** of a lift system. Put another way, for a given load and torque ***the inventive belt will have a lesser width w that a prior art flat belt.*** This, in turn, results in a system with a reduced space requirement as compared to a prior art flat belt system.

Use of the ribs also has the desirable effect of ***decreasing an operating noise level*** as the belt engages

[3] ISO 9981, page iii, Introduction, notes that "The belt ribbed surface fits the pulley grooves to make substantially total contact." See page iii. Therefore "rib angle" and "groove angle" are the same.

each pulley. The use of a grooved pulley with the inventive belt also eliminates the need for a rubber coating on the pulley."

To date over 14 references have been presented in this case in support of various 102 and 103 rejections, and yet none teaches the claimed rib angle alone or in combination. This is because each belt is engineered to solve a particular problem with a set of disclosed characteristics. In this case the novel use of 90° ribs patentably achieves enhanced torque and load capacity with reduced width and noise.

Claims 2, 4-7 depend from claim 1.

Claims 14, 16, 17 depend from claim 13.

Claim 31 depends from claim 28.

Applicant requests this rejection be withdrawn in its entirety.

2. Claim 7 is rejected under 35 USC 103(a) as being unpatentable over Adifon et al and Winninger et al, as applied to claim 3 and 15, respectively, and in further view of White, Jr. et al (US 4,981,462).

Claim 7 depends from claim 1.

3. Claims 3, 15, 18, 21-22, 26 and 30 are rejected under 35 USC 103(a) as being unpatentable over Adifon et al in view of Winninger et al, as applied to claims 2 and 14 and 28, and in further view of Suhling (DE 3,934,654) and Siefert (US 3,662,596).

Claim 3 depends from claim 1.

Claims 15, 18, 21-22 depend from claim 13.

Claim 30 depends from claim 28.

As to claim 26, please see the argument for #1 above as to Adifon and Winninger with respect to rib angle. As to Suhling and Seifert, Seifert only teaches a strain gage (11) in a tire cord and Suhling only teaches a current source (14). Neither cures the absence of the rib angle suffered by Adifon and Winninger. Hence, the proposed combination does not support the 103 (a) rejection and withdrawal is requested.

4. Claim 19 is rejected under 35 USC 103(a) as being unpatentable over Adifon et al over Winninger et al, Suhling and Seifert, as applied to claim 15, and in further view of White, Jr. et al.

Claim 19 depends from claim 13.

5. Claim 20 is rejected under 35 USC 103(a) as being unpatentable over Adifon et al over Winninger et al, Suhling and Seifert and White, Jr. et al as applied to claim 19, and in further view of Stork (US 3,948,113).

Claim 20 depends from claim 13.

6. Claims 8-10 are rejected under 35 USC 103(a) as being unpatentable over Adifon et al over Winninger et al and White et al, as applied to claims 7 and 33, and in further view of Stork.

Claims 8-10 depend from claim 1.

7. Claims 11 and 23 are rejected under 35 USC 103(a) as being unpatentable over Adifon et al in view of Winninger et al, as applied to claim 1, and in further view of Siefert.

Claim 11 depends from claim 1.

Claim 23 depends from claim 13.

8. Claims 12 and 24 are rejected under 35 USC 103(a) as being unpatentable over Adifon et al in view of Winninger et al, as applied to claims 1 and 13, and in further view of Suhling.

Claim 12 depends from claim 1.

Claim 24 depends from claim 13.

9. Claims 25, 33-34 and 36-37 are rejected under 35 USC 103(a) as being unpatentable over Adifon et al in view of Winninger et al, as applied to claims 1 and 13, and in further view of Stork.

Claim 25 depends from claim 1.

Claims 33, 36 depend from claim 1.

Claims 34, 37 depend from claim 13.

10. Claims 35 and 38 are rejected under 35 USC 103(a) as being unpatentable over Adifon et al in view of Winninger et al, Suhling and Seifert, as applied to claim 26, and in further view of Stork.

Claims 35, 38 depend from claim 26.

11. Claims 1-2, 4-5, 13-14, 16, 17, 28-29, and 31 are rejected under 35 USC 103(a) as being unpatentable over Adifon et al (WO 99/43598) in view of McKay (US 2,221,984).

As to claims 1, 13 and 28, neither of the cited references teaches use of a rib angle of approximately 90°. Adifon is argued in # 1 above.

McKay does not teach nor reasonably imply the claimed rib angle. The portion of McKay cited by the Examiner (Pg. 2, lines 35-49) simply does not specify a rib angle, but instead only refers generally to "pyramidal recesses" or "depressions", line 41. The term "pyramidal" in no way teaches a rib angle range of approximately 90° since a pyramid may have very "steep" sides, as in an obelisk, or be very "flat" having extremely divergent sides such as with a very wide base and minimal height. Neither version is disclosed in McKay, and hence McKay fails to support the rejection. Of course, the figures in McKay cannot be "scaled" to reach the desired rib angle.

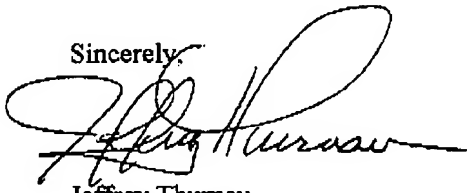
The remaining claims depend from claims 1, 13 or 28.

V. Fees

Any fees payable for this response may be deducted from deposit account 07-0475 in the name of The Gates Corporation.

Thank you for your attention to this case.

Sincerely,



Date: July 20, 2007

Jeffrey Thurnau
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303-744-4743

INTERNATIONAL STANDARD

ISO 9981

Second edition
1998-11-01

Belt drives — Pulleys and V-ribbed belts for the automotive industry — PK profile: Dimensions

Transmissions par courroies — Poulies et courroies striées pour la construction automobile — Profil PK: Dimensions

Reference number
ISO 9981:1998(E)

Introduction

A V-ribbed belt drive is composed of an endless belt with a longitudinally ribbed traction surface which engages and grips, by friction, pulley grooves of similar shape. The belt ribbed surface fits the pulley grooves to make nearly total contact.

Table 1 — Dimensions of PK pulley grooves

Dimensions in millimetres

Groove pitch, e	± 0,05 [1) 2)]	3,56
Groove angle, α [3)], for measuring	± 0° 15'	40°
Groove angle, α [3)], for testing and actual use	± 1°	40°
r_1	min.	0,25
r_2	max.	0,5
Checking ball or rod diameter, d_g	± 0,01	2,5
$2x$	nom.	0,99
$2y$ [4)]	max.	1,68
f	min.	2,5

1) The tolerance on e applies to the distance between the axes of two consecutive grooves.

2) The sum of all deviations from the nominal value e for all grooves in any one pulley shall not exceed ± 0,3.

3) The centreline of the groove shall make an angle of 90° ± 0,5° with the axis of the pulley.

4) y is not related to the nominal diameter of the pulley but is measured from the actual ride position of the ball or rod in the pulley.

3.2 Minimum effective diameter

The minimum recommended effective diameter, d_e, for PK pulleys is 45 mm.

3.3 Tolerances on finished pulley

3.3.1 Checking conditions

Profile, diameter and run-out tolerances shall be checked on the finished pulley without surface coating.

3.3.2 Groove-to-groove diameter tolerances

The variation in diameters between the grooves in any one pulley shall not exceed 0,15 mm. This variation is obtained by comparing the diameters over balls or rods.

3.3.3 Radial and axial circular run-out

Radial and axial circular run-outs shall not exceed 0,25 mm full indicator movement (FIM). Run-out in the two directions is measured separately with a ball mounted under spring pressure to ensure contact with the groove as the pulley is rotated.

3.3.4 Diameter over balls

The tolerances on the diameters over balls (K) shall not exceed ± 0,6 mm.

3.3.5 Groove finish

The pulley grooves shall have a surface roughness $Ra \leq 3,2$ µm. See ISO 254 and ISO 4287 for definitions and the method of measurement.

DOCKET NO. B01-085A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:		)	
	Heinz, Guenther	)	Examiner: Kruer, Stefan
		)	Group Art Unit: 3654
Serial No.:	10/037,427	)	
		)	
Filed:	01/02/2002	)	AFFIDAVIT
For:	Lift Belt and System	)	37 CFR §1.132

I, Douglas R. Sedlacek, under penalty of law hereby declare as follows:

1. I reside at 7383 S. Quince Ct., Centennial, Colorado, US.

2. In 1981 I graduated from the University of Nebraska with a degree in Chemical Engineering.

3. My employment history with The Gates Corporation (Gates) comprises:

   From 1981 to 1987 I was involved with the design of various aspects of multiple ribbed belts and toothed belts. This includes all aspects of rib and tooth design and belt material compounding. Compounding relates to selection of the various ingredients used in the belt including polymers (rubber), cure agents and fillers.

   From 1987 to 2002 I was primarily involved with design for multiple ribbed belts. This involved rib and compounding design.

   From 2002-2003 I was the Six Sigma coordinator for various projects including those related to multiple ribbed belts, toothed belts, and metals for pulleys and tensioners. This job concerned identifying and undertaking opportunities for improving the efficiency of the multiple ribbed belt and toothed belt manufacturing processes.

   From 2003 to present I have been involved with rubber material compounding and belt design for multiple ribbed belts.

4. I have been employed by Gates working in the area of belt design and am familiar with the terminology of the belt arts. One skilled in the art recognizes there is a difference between a "rib" and a "tooth". These features and the terms they describe have long been established in the art.

5. A "rib" extends along the endless (longitudinal) axis of a belt. In most cases there are can be up to 6 or more ribs present on a belt. A ribbed belt and rib 14 is shown in Fig. 1. A ribbed belt is used in for power transmission where some slippage of the belt on the pulleys is not problematic. Other terms used in the art are "V-ribbed" or "multiple ribbed".

6. A "tooth" extends transversely across the width of a belt. In other words, a tooth is disposed at 90° to the direction of a rib. The teeth are spaced on intervals (pitch) of between 3-15 mm along the entire length of the belt. A toothed belt and tooth 16 is shown in Fig. 2. A toothed belt is used for operation of equipment where it is desirable for the driver and driven to be synchronized and slippage of the belt on the sprockets is not beneficial to the system.

7. These features are not equivalent and are not interchangeable. A ribbed belt runs on pulleys while a toothed belt runs on sprockets. A ribbed belt will not function in a system designed for a toothed belt. A "rib" is known in the belt arts and its use is unambiguous and clearly distinguishable from a "tooth".

8. Further affiant sayeth naught.

Date: 3/21/07

By: Douglas R Sedlacek
Douglas R. Sedlacek

State of Colorado)
)
County of Denver)

The foregoing was subscribed before me by Douglas R. Sedlacek on March 21, 2007.

My commission expires October 12, 2008

Isabel Ross Lincoln

ISABEL ROSS LINCOLN NOTARY PUBLIC STATE OF COLORADO

My Commission Expires 10/12/2008